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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 August 2008*.

2a)☒ This action is **FINAL.**   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-65* is/are pending in the application.

    4a) Of the above claim(s) *28,29,64 and 65* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-27 and 30-63* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

1.   This Office Action is in response to the amendment filed on August 18, 2008.

2.   Claims 28-29 and 64-65 have been cancelled. Claims 1-27 and 30-63 are

pending.

Response to Amendment

3.   The 35 U.S.C. 101 rejection with regards to **Claims 29 and 65** are moot in view

of cancellation of said claims and are therefore withdrawn.

4.   The 35 U.S.C. 112 rejection with regards to **Claims 28 and 64** are moot in view

of cancellation of said claims and are therefore withdrawn.

5.   Applicant's arguments with respect to **Claims 1-27 and 30-63** have been

considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

6.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

7.   **Claims 1-14, 19-20, 22-25, 30-38, 40-45, 47-52, 54-56, 59-60, 62 and 65** are

rejected under 35 U.S.C. 103(a) as being unpatentable over *Keshav* (U.S. Patent No.

6,985,937 B1) in view of *Du et al* (U.S. Patent No. 5,826,239).

8.   As to **Claim 1,** *Keshav* discloses a method for regulating resource usage **(Figure 1)** by a plurality of applications **(Virtual Server 162A-G, Figure 1)** running on a plurality of machines **(Physical host 160A-C, Figure 1)**, the method comprising:

determining resources available at the plurality of machines **(Column 5, Lines 10-15);**

detecting requests for resources by each of the plurality of programs running on each of the plurality of machines **(Column 5, Lines 6-8);**

However, *Keshav* does not expressly disclose periodically exchanging resource information and distributed applications running on a plurality of interconnected machines including a global, distributed resource policy.

Du, in the same field of endeavor, teaches distributed applications running on a plurality of interconnected machines **(Computer Systems 12a-d and Computer software. Figure 1; Column 6, Lines 18-39)** including a global, distributed resource policy **(Workflow Process Management System contains a global policy for controlling resources between the distributed applications and machines. Figure 1; Column 6, Lines 18-39)** and

periodically exchanging resource information amongst the plurality of interconnected machines, wherein the resource information includes updated resource policies, request for the resources and resource availability at at least one of the plurality of interconnected machines **(Workflow process activity information (policies and resource data) can be stored at the plurality of machines within the system. Column 6, Lines 30-35)** and

allocating the resources to each of the plurality of distributed applications based

up on the global, distributed resource policy an the resource information **(Resources**

are allocated by the Global and Local Resource managers governed by the global

resource policy in the Workflow Process Management System. Column 4, Lines

38-56 and Column 13, Lines 12-25).

At the time of invention, it would have been obvious to a person of ordinary skill

in the art to combine the resource regulation system as taught by *Keshav* with the

global distributed application resource policy as taught by *Du.* The motivation would

have been to provide resource management across a distributed system.

As to **Claim 2,** *Keshav-Du* further discloses wherein said resources include

communication resources (Column 4, Lines 29-37).

As to **Claim 3,** *Keshav-Du* further discloses wherein said communication

resources include network bandwidth shared by the plurality of machines (Column 4,

Lines 29-37).

As to **Claim 4,** *Keshav-Du* further discloses wherein said resources include

computing resources (Column 4, Lines 29-37).

As to **Claim 5,** *Keshav-Du* further discloses wherein said computing resources

include processing resources available at the plurality of machines (Column 4, Lines 29-

37).

As to **Claim 6,** *Keshav-Du* further discloses wherein said computing resources

include memory resources available at the plurality of machines (Column 4, Lines 29-

37).

As to **Claim 7,** *Keshav-Du* further discloses wherein the plurality of programs

includes an application that is running on a plurality of computers (Column 5, Lines 10-

15).

As to **Claim 8,** *Keshav-Du* further discloses wherein the plurality of programs

includes an application that is running on a single computer (Column 3, Lines 59-63).

As to **Claim 9,** *Keshav-Du* further discloses wherein the resource policy includes

a rule specifying a percentage of available resources to be allocated to a particular

program (Column 4, Lines 7-9).

As to **Claim 10,** *Keshav-Du* further discloses wherein the resource policy

includes a rule specifying a specific quantity of resources to be allocated to a particular

program Column 4, Lines 3-4).

As to **Claim 11,** *Keshav-Du* further discloses wherein the resource policy is user

configurable (Column 4, Lines 4-6).

As to **Claim 12,** *Keshav-Du* further discloses wherein the resource policy

specifies priorities for allocation of resources amongst the plurality of programs (Free

resources are distributed to virtual servers first before the virtual server is transferred to

another server Column 6, Paragraph 1).

As to **Claim 13,** *Keshav-Du* further discloses wherein the priorities for allocation

of resources are automatically adjusted based on occurrence of particular events

(Column 6, Paragraph 1).

As to **Claim 14,** *Keshav-Du* further discloses wherein said detecting step includes detecting each instance of a program running at each of the plurality of machines (Column 4, Paragraph 3).

As to **Claim 19,** *Keshav-Du* further discloses wherein said exchanging step includes exchanging information based on changes in resource availability since a prior exchange of information (Column 6, Paragraph 4).

As to **Claim 20,** *Keshav-Du* further discloses wherein said exchanging step includes exchanging information based on changes in requests for resources since a prior exchange of information (Column 5, Paragraph 5).

As to **Claim 22,** *Keshav-Du* further discloses wherein said allocating step includes regulating usage of resources by each of the plurality of programs (Column 5, Lines 6-10).

As to **Claim 23,** *Keshav-Du* further discloses wherein said allocating step includes scheduling processing resources at each of the plurality of machines (Column 4, Paragraph 1).

As to **Claim 24,** *Keshav-Du* further discloses wherein said allocating step includes regulating the volume of communications sent by a particular program (Column 4, Paragraph 1).

As to **Claim 25,** *Keshav-Du* further discloses wherein said allocating step includes delaying the sending of a communication by a particular program (Column 6, Paragraph 5).

As to **Claim 30,** *Keshav-Du* further discloses a system for regulating utilization of computer resources of a plurality of computers, the system comprising: a plurality of computers (Physical host 160A-C, Figure 1) having resources to be regulated which are connected to each other through a network ; a monitoring module (Physical host load balancer 130, Figure 1) provided at each computer having resources to be regulated, for monitoring resource utilization and providing resource utilization information to each other connected computer having resources to be regulated; and an enforcement module at each computer for which resources are to be regulated for regulating usage of resources based on said transferred rules and the resource utilization information received from other connected computers (Dynamic Resource Configuration Module 100 manages and enforces quality of service rules governing the utilization of resources at each of the plurality of computers (Paragraph bridging Column 3 and 4)) .

Du teaches a manager module for providing a global distributed policy governing the global utilization of resources available on the plurality of computers (Workflow Process Management System contains a global policy for controlling resources between the distributed applications and machines. Figure 1; Column 6, Lines 18-39); and

wherein each computer of the plurality of computers periodically exchanges information with other computers of the plurality of computers, including updates to the global, distributed policy (Workflow process activity information (policies and resource data) can be stored at the plurality of machines within the system. Column 6, Lines 30-35).

As to **Claim 31,** *Keshav-Du* further discloses wherein said resources to be regulated include communication resources (Column 4, Lines 29-37).

As to **Claim 32,** *Keshav-Du* further discloses wherein said resources to be regulated include processing resources (Column 4, Lines 29-37).

As to **Claim 33,** *Keshav-Du* further discloses wherein said monitoring module at a given computer identifies at least one application running at the given computer (Column 5, Lines 5-8).

As to **Claim 34,** *Keshav-Du* further discloses wherein said monitoring module detects a request for resources by said at least one application (Column 5, Lines 60-61).

As to **Claim 35,** *Keshav-Du* further discloses wherein said monitoring module detects a request for network communication by said at least one application (Column 5, Lines 45-48).

As to **Claim 36,** *Keshav-Du* further discloses wherein said monitoring module at a given computer determines resources available at the given computer (Column 5, Paragraph 5).

As to **Claim 37,** *Keshav-Du* further discloses wherein said monitoring module at a given computer provides resource utilization information to each other connected computer at a fixed interval (Figure 5, Column 11, Lines 18-19).

As to **Claim 38,** *Keshav-Du* further discloses wherein said fixed interval is a sub-second interval (Paragraph bridging Column 10 and 11).

As to **Claim 40,** *Keshav-Du* further discloses wherein said monitoring module at

a given computer provides resource utilization information to each other connected

computer in response to particular events (Module monitors resource utilization to

determine best fit in response to virtual server becoming overloaded. Column 6, Lines

10-13).

As to **Claim 41,** *Keshav-Du* further discloses wherein said resource utilization

information provided by said monitoring module includes information regarding requests

for communication resources (Column 5, Paragraph 4).

As to **Claim 42,** *Keshav-Du* further discloses wherein said resource utilization

information provided by said monitoring module includes information regarding requests

for processing resources (Column 5, Paragraph 4).

As to **Claim 43,** *Keshav-Du* further discloses wherein said rules provided by said

manager module include a rule specifying a percentage of available resources to be

allocated to a particular application (Column 4, Paragraph 1).

As to **Claim 44,** *Keshav-Du* further discloses wherein said rules provided by said

manager module include a rule specifying a specific quantity of resources to be

allocated to a particular application (Column 4, Paragraph 1).

As to **Claim 45,** *Keshav-Du* further discloses wherein said manager module

permits a user to establish rules governing utilization of resources (Paragraph bridging

Column 3 and 4, Lines 4-6).

As to **Claim 47,** *Keshav-Du* further discloses wherein said enforcement module

schedules processing resources at each of the plurality of computers based on said

transferred rules and the resource utilization information (Column 4, Paragraph 2).

As to **Claim 48,** *Keshav-Du* further discloses wherein said enforcement module

regulates the volume of communications sent by a particular application (Column 7,

Paragraph 7-8).

As to **Claim 49,** *Keshav-Du* further discloses wherein said enforcement module

regulates the frequency of communication by a particular application (Communications

are denied when resources become overloaded. Column 9, Paragraph 5).

As to **Claim 50,** *Keshav-Du* further discloses the system of claim 30, further

comprising: a configuration module for a user to establish rules governing utilization of

resources (Dynamic Resource Configuration Module 100 Figure 1, Column 4 Lines 38-

41).

As to **Claim 51,** *Keshav-Du* further discloses wherein said configuration module

collects resource utilization information from the plurality of computers (Column 5,

Paragraph 1).

As to **Claim 52,** *Keshav-Du* further discloses wherein said configuration module

suggests rules governing utilization of resources based, at least in part, upon the

collected resource utilization information (Dynamic Resource Configuration Module 100

monitors resource utilization and adjusts the Quality of Service. Column 5, Lines 6-10).

As to **Claim 54,** *Keshav-Du* further discloses a method for scheduling

communications by a plurality of applications (162A-G, Figure 1) running on a plurality

of computers (160A-C, Figure 1) connected to each other through a network, the

method comprising: providing a policy specifying priorities for scheduling

communications by the plurality of applications (Column 11, Paragraph 4); periodically

determining communication resources available at the plurality of computers (Column

11, Paragraph 2); at each of the plurality of computers, detecting requests to

communicate and identifying a particular application associated with each request

(Column 8, Paragraph 1); exchanging bandwidth information amongst the plurality of

computers, the bandwidth information including applications making the requests to

communicate and a measure of communications resources required to fulfill the

requests (Column 5, Paragraph 5); and at each of the plurality of computers, scheduling

communications based upon the policy and the bandwidth information (Column 6,

Paragraph 2).

  Du teaches wherein the policy is global and distributed (Workflow Process

Management System contains a global policy for controlling resources between the

distributed applications and machines. Figure 1; Column 6, Lines 18-39).

  As to **Claim 55,** *Keshav-Du* further discloses wherein said communications

comprises incoming and outgoing network traffic (Dynamic Resource Configuration

Module monitors both system calls (incoming) and requests for more resources

(outgoing) Column 5, Paragraph 2).

As to **Claim 56,** *Keshav-Du* further discloses wherein said communication resources include network bandwidth shared by the plurality of computers (Column 4, Paragraph 1).

As to **Claim 59,** *Keshav-Du* further discloses wherein said scheduling step includes immediately transmitting all communications if the bandwidth information indicates communication traffic is light (Communications are continued while communication denials are under specified threshold. Column 9, Paragraph 4).

As to **Claim 60,** *Keshav-Du* further discloses wherein said scheduling step includes delaying a portion of the communications if the bandwidth information indicates communication traffic is heavy (Communications are denied, delaying the communication until a threshold is met. Column 9, Paragraph 5).

As to **Claim 62,** *Keshav-Du* further discloses wherein said scheduling step includes load balancing (Column 11, Paragraph 3).

As to **Claim 63,** *Keshav-Du* further discloses wherein said load balancing includes redirecting communications received at a first computer to a second computer (Column 11, Paragraph 7).

Claims 15-18, 26-27, 39, 53, 57-58 are rejected under 35 U.S.C 103(a) as being unpatentable over *Keshav et al* (U.S. Patent 6,985,937 B1) in view of *Du et al* (U.S. Patent No. 5,826,239) and in further view of *Ullmann et al* (U.S. Patent 7,120,685 B2).

As to **Claim 15,** *Keshav-Du* discloses said detecting step (Column 4, Paragraph 3).

Keshav-Du does not expressly disclose the detecting step is performed with a frequency established by a user.

However, *Ullmann,* in the same field of endeavor, discloses a monitoring system (THFL) where the frequency can be adjusted by the user (Column 5, Lines 14-18).

At the time of invention, it would have been obvious to a person of ordinary skill in the art to modify the detecting step of *Keshav* with the teachings of *Ullmann* to allow said detecting step to have the frequency customizable by the user. The motivation would have been to allow the user customization options to better analyze data (Column 2, Paragraph 3).

As to **Claim 16,** *Ullmann-Keshav-Du* further discloses wherein a user can establish a frequency greater than once per second (polling interval could be every minutes)(a user could change the time interval) (Figure 4, Column 5, Paragraph 1). In addition, the same motivation is used as the rejection for claim 15.

As to **Claim 17,** *Ullmann-Keshav-Du* further discloses wherein said frequency can be established by a user (Figure 4, Column 5, Paragraph 1). In addition, the same motivation is used as the rejection for claim 15.

As to **Claim 18,** *Ullmann-Keshav-Du* further discloses wherein a user can establish a frequency greater than once per second(polling interval could be every minutes)(a user could change the time interval) (Figure 4, Column 5, Paragraph 1). In addition, the same motivation is used as the rejection for claim 15.

As to **Claim 26,** *Keshav-Du-Ullmann* discloses the method of collecting resource information regarding requests for resources and resource availability (Column 5, Lines 29-33).

Ullmann further discloses generating resource utilization information for display to a user based upon the collected resource information (Column 3, Paragraph 2). In addition, the same motivation is used as the rejection for claim 15.

As to **Claim 27,** *Ullmann-Keshav-Du* further discloses automatically suggesting modifications (Adjusts the frequency) to the resource policy based, at least in part, upon the collected resource (error events) information (Column 7, Lines 4-14). In addition, the same motivation is used as the rejection for claim 15.

As to **Claim 39,** *Ullmann-Keshav-Du* further discloses wherein said fixed interval is configurable by a user (Figure 4, Column 5, Paragraph 1). In addition, the same motivation is used as the rejection for claim 15.

As to **Claim 53,** *Ullmann-Keshav-Du* further discloses wherein said configuration module displays the collected resource utilization information to a user (Column 3, Paragraph 2). In addition, the same motivation is used as the rejection for claim 15.

As to **Claim 57,** *Ullmann-Keshav-Du* further discloses wherein said exchanging step occurs at a frequency established by a user (Figure 4, Column 5, Paragraph 1). In addition, the same motivation is used as the rejection for claim 15.

As to **Claim 58,** *Ullmann-Keshav-Du* further discloses wherein a user can establish a frequency greater than once per second (Figure 4, Column 5, Paragraph 1). In addition, the same motivation is used as the rejection for claim 15.

5.   **Claims 21, 46, and 61** are rejected under 35 U.S.C 103(a) as being

unpatentable over *Keshav et al* (U.S. Patent 6,985,937 B1) in view of *Du et al* (U.S.

Patent No. 5,826,239) and in view of *Vahalia et al* (U.S. Patent 6,298,386 B1).

As to **Claim 21,** *Keshav-Du* discloses said exchanging step.

Keshav-Du does not expressly disclose using a bandwidth-conserving protocol.

However, *Vahalia,* in the same field of endeavor, discloses using a UDP protocol

to minimize the loss of performance (Column 18, Lines 38-40).

At the time of invention, it would have been obvious to a person of ordinary skill

in the art to modify the detecting step of *Keshav* with the teachings of *Vahalia* to allow

said detecting step to use a bandwidth-conserving protocol. The motivation would have

been to minimize the loss of performance (Column 2, Paragraph 2).

As to **Claim 46,** *Vahalia-Keshav-Du* further discloses wherein said monitoring

module uses a bandwidth-conserving protocol for providing resource utilization

information (Column 18, Lines 38-40). In addition, the same motivation is used as the

rejection for Claim 21.

As to **Claim 61,** *Vahalia-Keshav-Du* further discloses wherein said scheduling

step includes delaying transmission of communications by lower-priority applications

(Column 9, Paragraph 1). In addition, the same motivation is used as the rejection for

Claim 21.

Conclusion

9.   Applicant's amendment necessitated the new ground(s) of rejection presented in

this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37

CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to ROBERT B. MCADAMS whose telephone number is

(571)270-3309. The examiner can normally be reached on Monday-Thursday 6:30am-

5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Bunjob Jaroenchonwanit can be reached on 571-272-3913. The fax phone

number for the organization where this application or proceeding is assigned is 571-

273-8300.

Information regarding the status of an application may be obtained from the

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USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/R. B. M./
Examiner, Art Unit 2456

/Bunjob Jaroenchonwanit/
Supervisory Patent Examiner, Art Unit 2456